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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/615,507	07/13/2000	Claude Q.C. Hayes	P-5534-27	4652

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EXAMINER
BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/615,507	Applicant(s) HAYES, CLAUDE Q.C.
	Examiner Melanie D. Bissett	Art Unit 1711

-- Th MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The rejections based on 35 USC 112 and claim objections have been withdrawn based on the applicant's amendments and based on the teaching of the specification. It is the examiner's position that the mention of specific polymers in the specification gives guidance to clarify the terms "high molecular weight" and "high density". The rejections based on 35 USC 102 and 103 have been maintained.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-59 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayes.

4. From a prior Office action:

> 10. Hayes discloses a flexible thermal composite comprising an endothermic phase change material embedded within a molding matrix, where preferred matrix materials include synthetic and natural polymers (column 2, lines 34-50; column 3, lines 17-26). Hayes teaches several of the applicant's claimed endothermic materials, including micronized polyethylene waxes, noting also that the endothermic materials may be recycled (column 3, lines 1-7). Furthermore, Hayes teaches the use of perforated or powdered metals suspended in the matrices and also a KEVLAR/endothermic polyethylene composite sandwiched between two sheets of aluminum (column 4, lines 15-18; column 5, lines 34-45). In each of these situations, a thermal conductive material is contacting the thermal control composite.

5. Claims 1-4, 9-10, 13-14, 17-18, 21-24, 29-30, 33-34, 37-38, 41-44, 49, 52-53, and 56-57 are rejected under 35 U.S.C. 102(b) as being anticipated by Tzur.

6. From a prior Office action:

> 12. Tzur discloses flexible thermal control composites comprising endothermic hydrated inorganic salt powder and a polymeric binder (example 6). Tzur teaches that some of th materials will undergo a phase change after the melting the inorganic material that could result in the separation of the hydrated salt into an anhydrous salt and its water of hydration (column 15, lines 61-65). The inorganic material und rgoes a phase change during heating and cooling, thus indicating a phase

change material. Sinc the unseparated, hydrated inorganic material could be reused, it is thought to be recyclable. Examples t ach th use of hydrated epsom salts and other claimed inorganic salts while also teaching natural and synthetic rubber binders. For example, neoprene latex polymers are included in several examples (Stage 1, column 9; examples). Tzur also teaches the need for folded metal mesh or woven ceramic cloth as a structural means for the composite, thus providing a thermally conductive material in contact with the composite (column 3, line 65-column 4, line 2; Figure 4).

7. Claims 1-59 are rejected under 35 U.S.C. 102(b) as being anticipated by Buckley.

8. From a prior Office action:

14. Buckley discloses flexible thermal control composites containing endothermic phase change materials dispersed within a polymer matrix (col. 3 line 65-col. 4 line 1), where Buckley lists several possible polymer natural or synthetic matrix materials (col. 5 lines 21-32). Phase change materials mentioned in the reference include polyethylene glycol and phase change salts, suggesting the use of oxidized polyethylene homopolymers and inorganic salts (col. 13 lines 21-30). The composite may include a conductive material, or the composite may have an adjacent conductive material layer (col. 7 lines 38-55), thus providing contacting thermal conductive materials. Furthermore, Buckley teaches the phase change materials as being regenerated to the original state, thus suggesting recyclable properties of the materials. Regarding the size of the phase change materials used, Buckley suggests incorporating the materials into microcapsules, indicating the phase change materials are sized to be incorporated into microcapsules. Thus, it is the examiner's position that one skilled in the art would clearly envision the use of micronized phase change materials in the invention.

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 5-8, 11-12, 15-16, 19-20, 25-28, 31-32, 35-36, 39-40, 45-48, 50-51, and 54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tzur.

11. From a prior Office action:

17. Tzur applies as above, failing to specify the particle sizes (i.e. "micronized") of the inorganic powders used in the invention. However, the term "powder" as used in the reference indicates very small particle diameter. It is the examiner's position that it would have been prima facie obvious to use the inorganic powder having any desired particle size to optimize the thermal properties of the composite.

Response to Arguments

12. In response to the applicant's argument that "high molecular weight typically refers to polymer molecular weights of at least 1000", the examiner notes that no support from the specification or prior art have been cited to provide evidence of such. However, because the specification gives guidance as to which specific polymers are useful in the invention as high molecular weight and high density polymers, it is the examiner's position that one of ordinary skill in the art would recognize polymers of similar molecular weight and density to have "high molecular weight" or "high density".

13. Regarding the rejections based on 35 USC 102 and 103, the applicant points to the specification for definition of the term "distributed, dispersed and suspended within said polymer." It is noted that the passage from the specification relied upon by the applicant is not stated as a definition of the term but instead serves as a description of the interaction between the polymer materials and the endothermic materials. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Also, it is the examiner's position that one of ordinary skill in the art would recognize the term "distributed, dispersed and suspended within said polymer" and would not look to the specification for guidance to define the term. In the broadest interpretation of the claim, it is the examiner's position that the dispersion of

endothermic components into a polymeric material matrix would anticipate the applicant's claimed flexible thermal control composite.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb
May 27, 2003

James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700